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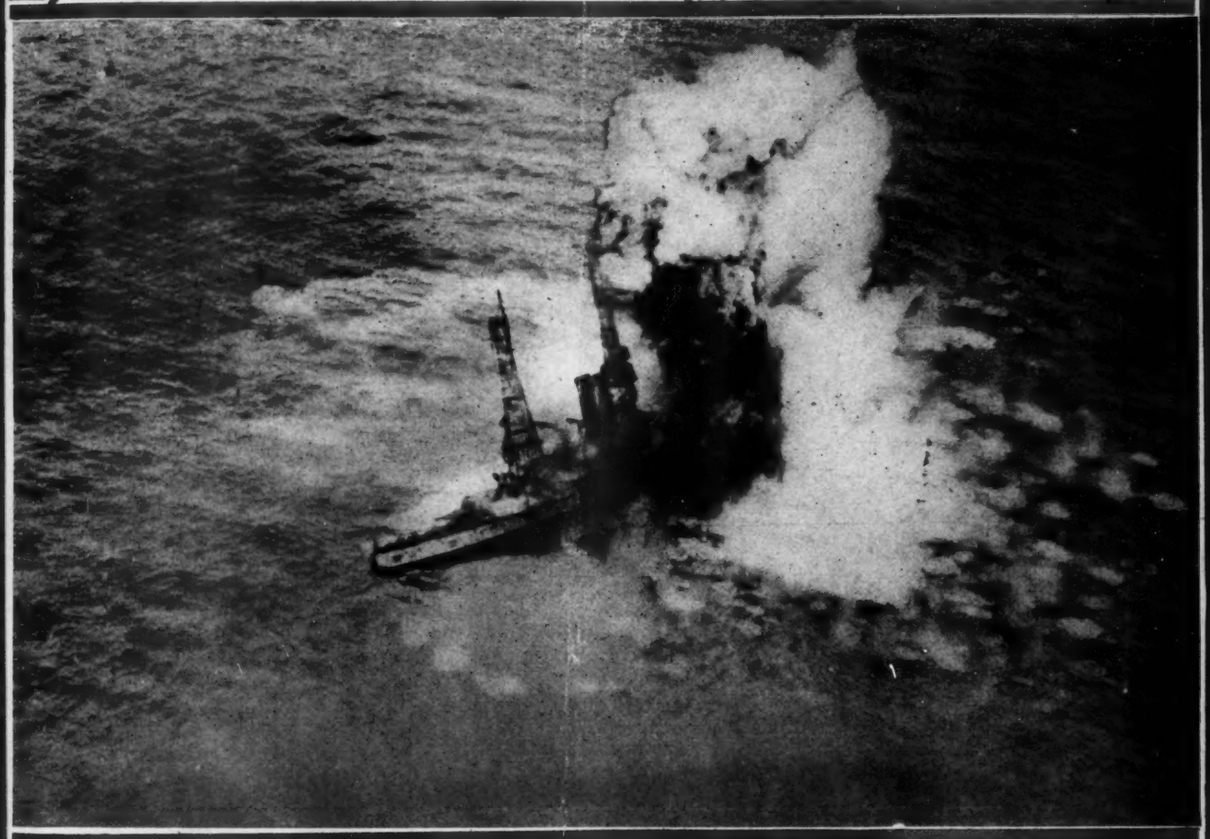

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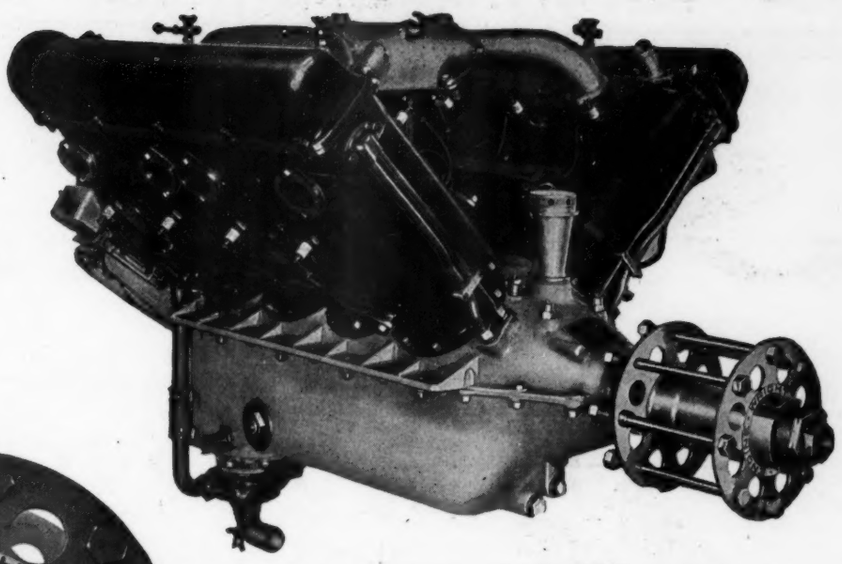

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OCTOBER 10, 1921 VOL. XI. NO. 15

Member of the Audit Bureau of Circulations

INDEX TO CONTENTS

Editorials	419	New York-Havana Flying Boat Service	427
Monoplanes or Biplanes ?	420	Crissy Field, San Francisco	428
Merger of French Aircraft Firms	422	New Army Airship	428
A Short History of Aviation in China	422	Cotton Airplane Fabric	428
New Altitude Record: 40,800 ft.	423	International Aero Congress, Omaha	429
California-Curtiss Airplane Co. Formed	425	"Who's Who in American Aeronautics"	430
Marseilles-Algiers Airship Service	425	B. Crowell Heads Aero Club of America	431
Second German Soaring Competition	426	4300-lb. Bomb Dropped at Aberdeen	431
Foreign News	427	Aeromarine Operations Extend to Texas	431
		A Letter	432

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Thomas-Morse Training 2-Seater in flight over Ithaca, N. Y.

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AN AUTHORITATIVE STATEMENT FROM A LEADING NEW YORK CITY NEWSPAPER ON THE REMARKABLE RECORD OF AEROMARINE AIRWAYS PASSENGER SERVICE

Here is what the Editor of the New York Evening Mail had to say on the subject in a leading editorial printed in that newspaper on Friday, August 26, 1921.

THE EVENING MAIL AUGUST 26 19

Fine Flying Over Fulton's Wake.

New York was the first port in America, if not in the world, to make commercial use of steam navigation. It is the first port in the country, also, to maintain successful regular seaplane transportation over its harbor upon a considerable scale.

Public comment should extend congratulation to the Aeromarine Airways, operating from the foot of West Eighty-second street, for the fine standard of schedule and safety it has maintained during its three months of passenger service this summer.

The official report of the Airways to the Bureau of Aeronautics of the Navy department shows that 2,007 passengers have been taken aloft by four flying boats, in total flights of 28,171 miles, with but one mishap and that of no serious nature. One of the boats had to make a forced landing during a storm. There were six persons in the craft at the time and none suffered so much as a scratch.

We may doubt if any truthful report of land carriage for this number of miles, trips and passengers could disclose as high a record of freedom from "troubles of the road," unless the conveyance were upon rails. Certainly no highway vehicle operated at seventy miles per hour would perform as faithfully as these flying boats have done. The accomplishment must have been won by a most praiseworthy carefulness both of mechanicians and pilots.

The Aeromarine Airways service has made a splendid demonstration in the direction of permanent, safe and economical air-flight commercial transportation over waters which but little more than a century ago were agitated under the paddle-wheels of Fulton's historic, clanking Clermont.

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Aeromarine Flying Boats

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AVIATION AND AIRCRAFT JOURNAL

LADISLAS D'ORCY, EDITOR
ALEXANDER KLEMIN
EDWARD P. WARNER
RALPH H. UPSON, CONTRIBUTING EDITORS

Vol. XI | OCTOBER 10, 1921 | No. 15

Passing the 40,000 Ft. Mark

THE altitude flight of Lieut. John A. MacReady, A.S., which culminated in his passing the 40,000 ft. mark, is a performance which reflects the greatest credit on the pilot and on the technical men who were associated in the endeavor to make such a record possible.

The much abused Liberty engine and the supercharger, designed by Stanford A. Moss, with which it was fitted, share honors with Capt. Georges Lepère of the French army, and the technical staff of McCook Field to whose joint plans the record-breaking airplane owes its existence. Considering that this machine was designed in its original form in 1918, and that it has undergone but minor changes since, the performance is the more remarkable.

The pluck and the endurance of Lieutenant MacReady, who made a number of high altitude flights before he finally succeeded in breaking Major Schroeder's record, deserve the warmest praise. What a strain such a performance puts on the pilot's constitution may be gathered from Lieutenant MacReady's narrative which appears in this issue, and can be visualized by those who have been up only one half that altitude.

Progress in Soaring Flight

THE account of the second German soaring competition which will be found in this issue affords considerable food for thought. That one of the competitors should have succeeded to fly without mechanical power a distance of six miles, in the course of which he rose some 300 ft. above his starting point, and even described a "figure eight", sufficiently demonstrates the advance our erstwhile enemies have made in this comparatively unknown branch of aeronautics.

It is one of the ironies of fate that the Versailles peace treaty has proved, insofar as aeronautics is concerned, more beneficial than harmful to the Germans. The treaty compelled them to destroy all their war machines; as a consequence, the German aircraft industry, instead of being glutted with war machines, and paralyzed by their conversion into inefficient commercial carriers, is able to go ahead with the development of purely civil types of aircraft. Our readers are well aware of the fact that they have not let this opportunity slip by. Further, the Allies put restrictions on the use, by the Germans, of aircraft engines built during the war which exceeded a given horsepower. Again, as a result, the Germans were led to undertake the development of machines which would embody the greatest possible efficiency and so overcome the initial handicap imposed by a limitation in horsepower.

Finally, the destruction of a huge number of war-time aircraft engines, and the shortage of power plants which the Interallied Commission of Aeronautical Control would approve for civil uses, may be held, in part at least, responsible for the deep interest German aeronautical circles are showing toward soaring flight.

It is significant that the soaring machines which displayed the best performance at the competition closely followed the lines of the low resistance cantilever monoplanes which Germany produced since the armistice. Hence it is hardly astonishing to hear, on the authority of Mr. Handley Page, that in the case of one of these soarers the *L/D* ratio *for the whole machine* is 19 : 1. It is obvious that if soaring flight is to be achieved beyond a few short hops, the machines must be at least as efficient, if not more so, than the best power driven airplanes.

While we do not believe that soaring machines are likely to displace airplanes as commercial carriers, and even less so as war machines, soaring experiments nevertheless afford an excellent opportunity for a more thorough study of the structure of the atmosphere, which can but benefit airplane design, and perhaps also piloting.

On the other hand it is quite conceivable that soaring machines fitted with an auxiliary power plant may in the near future afford an excellent pastime, one which would have all the elements of real sport, and beside have the advantage of being inexpensive. Such "auxiliary soarers" seem to us more likely to solve the problem of the aerial Ford than the sundry "flying bicycles" which even in the hands of a trained athlete have a negligible performance in comparison with that achieved by the real soaring machines.

The Omaha Aviation Meeting

THE aviation meeting which will be held on Nov. 3 to 5, next, at Omaha, Neb., promises to be one of the biggest events of its kind ever held. The inclusion in the meeting of the Pulitzer Trophy race constitutes alone a first rate drawing card and added interest will be given the meeting by the competition for the Larsen Aerial Efficiency Trophy, donated by John M. Larsen. The latter trophy, as its name indicates, is to go to the airplane embodying the greatest commercial efficiency, and for this reason it is of particular interest to operators of civil aircraft.

The importance of the Pulitzer Trophy race as a medium for bringing forth new high speed airplanes is obvious. The Army and the Navy have both constructed fast machines for this event, but it is doubtful whether these machines will compete, as the General Staff, on the grounds of economy, has refused permission to do so, and this despite the fact that the organizers of the meeting offered to pay the shipping and operating expenses of the machines.

This attitude of the General Staff is highly deplorable, for a race is the best means for developing new high speed types, which are of the greatest importance for national defense.

Monoplanes or Biplanes?

In connection with the article Single Engine Cabin Airplanes by Donald W. McIlhiney which was published in our issue of Sept. 26, 1921, we are reproducing below in free translation an article by André Herbemont, chief engineer of the Blériot-Spad company of France, and designer of the well-known Spad airplanes. M. Herbemont contributed this article to our contemporary L'Air in response to an inquiry as to whether the airplanes of the immediate future would be thick wing cantilever monoplanes, or biplanes built along the orthodox ideas of external trussing.

M. Herbemont's views are of particular interest in this case, not only because he is the designer of one of the most efficient commercial airplanes of recent date, but also because the comparison he makes of several well-known European cabin machines gives results which are at considerable variance with those computed by Mr. McIlhiney.

SPAD S-33 SIX-SEATER (245 HP. SALMSON ENGINE). PAY LOAD, 1452 LB.

It may be remembered, as we also have editorially commented upon the fact, that the commercial efficiency formula adopted by Mr. McIlhiney gave the Junkers monoplane the highest "figure of merit", with the Spad S-33 second, and the Fokker F-3 and the Zeppelin-Dornier C-3 third and fourth, respectively. M. Herbemont expresses commercial efficiency as "pounds of pay load per horsepower"—a formula which has the merit of simplicity—and based upon this criterion the Spad S-33 is shown to be greatly superior in commercial efficiency to both the Junker and the Fokker. EDITOR.

The question "Metal or wood airplanes?" cannot be answered by stating an absolute principle. The two types of wings are each advantageous in their own way, and embody at the same time serious drawbacks.

The airplane of the future will probably be a sort of semi-biplane, or double monoplane, by which I mean a machine with medium thick wings, braced by a small number of interplane struts and wires.

In laboratory tests struts and wires strikingly demonstrate the parasite resistance they cause, and the internally braced thick wing monoplane gives an L/D which is far superior to that shown by the best biplanes. It should be noted, however, that laboratory tests are made with scale models of considerable reduction. Now, it is easy correctly to reproduce the strutless monoplane in a scale model, but it is more difficult to do so with externally braced biplanes, the bracing of which cannot be exactly reproduced. The results of wind tunnel tests may therefore be at variance with the performance of a full size machine.

Aside from these practical difficulties one cannot insist too strongly on that the L/D figures obtained in laboratory tests are the result of an L which is the *total* lift of the machine, and of a D which is the *total* drag of the machine.

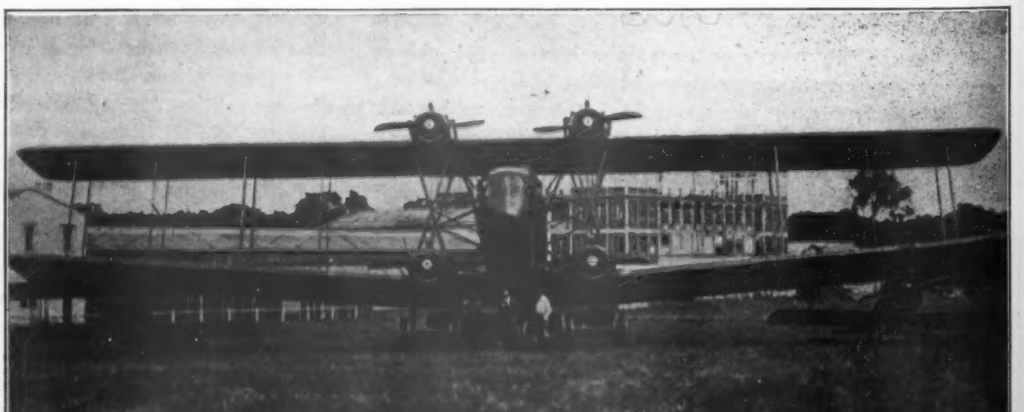
The internally trussed thick wing monoplane affords the possibility of achieving a performance equal to that of an externally trussed thin wing biplane, but with higher wing and power loading. Full flight tests of machines such as the Junker confirm this superiority in efficiency, although to a lesser extent than the laboratory tests showed, which is due to the difficulty of correctly reproducing airplanes in scale models, mentioned above.

But all cantilever monoplanes have a serious handicap: *their net weight*, or weight empty.

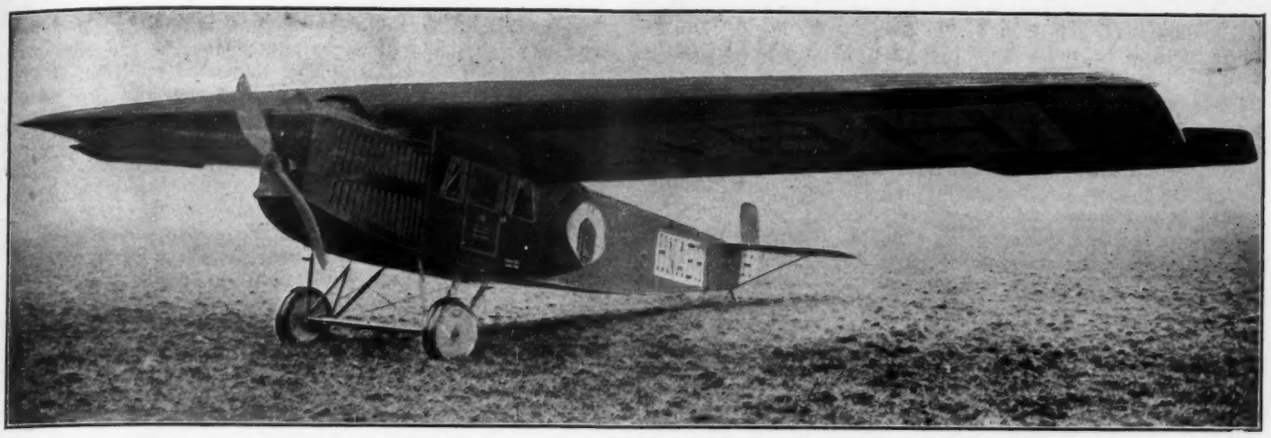
The efficiency of an airplane is obviously independent of the total weight of the machine. The only factor which determines the commercial efficiency is the ratio Pay load/Horsepower, or pounds of pay load per horsepower, all other things being equal, *including the speed and the range.*

Now a strutless cantilever monoplane will have a greater structural weight than an externally trussed biplane of equivalent characteristics, and this for the following reasons. In a biplane the distance between the extreme limits of attachment of the wing cell is equal to the interplane gap. In a cantilever monoplane, on the other hand, it is equal to the maximum depth of the wing. If the bending moments were equal in both cases it is obvious that for the same safety factor the biplane cell, because of its greater depth (height), would involve a lesser structural weight than the monoplane wing. In practice, however, the best monoplane cannot carry twice the wing-load of a biplane. The area of a monoplane wing will therefore be greater than that of a biplane cell of equal aspect ratio, the span of a monoplane will likewise be greater than that of a biplane, and the bending moment at the wing roots will be increased in the same proportion—always assuming that an equal performance is expected from the two machines.

It may be objected that the cantilever monoplane merely follows the example set by nature in bird flight. Granting this argument, it may be pointed out that the wings of a cantilever monoplane differ from bird wings by their great thickness and that they must needs always be thicker than those of externally



BLERIOT "MAMMOUTH" (FOUR 250 HP. HISPANO-SUIZA ENGINES)



FOKKER F-3 SIX-SEATER (220 HP. B.M.W. ENGINE). PAY LOAD, 1050 LB.

trussed biplanes. Consequently they will be much heavier per unit of surface area. This high initial weight is the great drawback of cantilever monoplane, just as their high L/D is their main asset. In the biplane, on the other hand, light weight per unit area is the principal advantage, while high parasite resistance is the chief disadvantage this construction involves.

The ideal supporting surface is therefore the one which combines the advantages of the two types above mentioned, and attenuates at the same time their drawbacks. The result will be the semi-biplane mentioned in the beginning of this article, a machine embodying wings of medium thickness and a wing truss consisting of a few well streamlined struts.

I have personally made numerous experiments with wing cells designed along this line of thought and the results obtained have never been equalled, to my knowledge, by any cantilever monoplane or orthodox strut-and-cross-wire biplane.

The table which is printed below shows the principal characteristics of three cantilever monoplanes (Junkers, Zeppelin-Staaken, and Fokker) and of two externally trussed biplanes (Blériot-Mammouth and Spad S-33), all being designed for commercial transport. The Zeppelin-Staaken and the Blériot Mammouth are four-engined machines, while the remainder are single engine airplanes. The Fokker and the Spad are both six-seaters, carrying five passengers and a pilot.

For all these machines the commercial efficiency or pay load has been calculated on a common basis by subtracting from the useful load the weight of the pilot and that of the fuel required for a 310-mile (500 km.) flight in a head wind of 33 ft. per second. (Program of the French air navigation service.) By dividing the resultant pay load with the total horsepower of the airplane we obtain the commercial efficiency factor Pounds of Pay Load per Horsepower.

The accompanying table conclusively proves the chief defect of internally trussed monoplanes: *the great structural weight of the wings.* In this connection it is worth noting that the ratio Useful Load/Weight Empty, which nearly attains 100 per cent in the Spad S-33, and is 0.660 in the Blériot-Mammouth (which is three years old), fluctuates between 0.399 and 0.666 in the case of the most modern cantilever monoplanes. As a consequence, the pay load per horsepower, or "pay loading", works out as 5.92 lb./hp. for the Spad S-33, while for the cantilever monoplanes in question it varies between 2.87 lb./hp. (Zeppelin-Staaken) and 4.77 lb./hp. (Fokker F-3).

It may be objected that we are comparing airplanes of widely divergent dimensions and construction systems. Disregarding this objection, the most interesting comparison is that between the Spad and the Fokker, both machines having approximately the same gross weight, wing area, and horsepower, both being six-seater cabin airplanes, and both having appeared at about the same time. From the commercial viewpoint a comparison of the two machines is therefore fully justifiable, and the result is distinctly unfavorable to the cantilever monoplane.*

In addition to its lower commercial efficiency, the internally trussed monoplane has some drawbacks which arise from its structural arrangement. First, the monoplane has much greater overall dimensions than an equivalent biplane, as may be seen from the fact that while the span of the Fokker F-3 is 56 ft. 3 in., that of the Spad S-33 is only 38 ft. 4 in., and the monoplane is besides 7 ft. longer and 7 in. higher than

* While we do not dispute this opinion which is solidly stayed by figures we nevertheless believe that the performance of the Fokker F-3 would be considerably improved if it were as carefully streamlined as the Spad S-33. —EDITOR

TABLE OF CHARACTERISTICS OF COMMERCIAL MONOPLANES AND BIPLANES

TYPE	JUNKER	ZEPPELIN-STAAKEN	BLERIOT MAMMOUTH	FOKKER F.III	SPAD S-33
Total horsepower	185	1000	1000	220	245
Wing area (sq. ft.)	417	1040	2448	452	456
Weight empty (lb.)	2317	13360	11,000	2640	2310
Useful load (lb.)	1288	5340	7260	1760	2200
Weight loaded (lb.)	3605	18700	19,260	4400	4510
Wing loading (lb./sq. ft.)	8.64	16.4	7.86	9.75	9.89
Power loading (lb./hp.)	19.49	18.7	19.26	20.0	18.4
Speed at 6500 ft. (m.p.h.)	111	118	93	108	118
Useful load / Weight empty = (lb.)	0.555	0.399	0.660	0.666	0.952
Pay load (lb.)	655	1776	4290	1050	1452
Pay load per hp. (lb.)	3.54	1.77	4.29	4.77	5.92

Editor's Note. The figures in the above table do not exactly tally with those given by M. Herbemont, except the ones referring to the Bleriot Mammouth and to the Spad S-33. Regarding the other figures, those referring to the Junker and to the Fokker F-3 are the ones used by Mr. McIlhiney in the article mentioned in the introduction. These differ but little from those given by M. Herbemont in the case of the Junker, but as regards the Fokker there is a great discrepancy, as the French author credits this machine—when fitted with a 230 hp. Siddeley, "Puma" engine—with a useful load of only 1450 lb., and with a pay load of 770 lb.

On the other hand, in the case of Zeppelin-Staaken we have used the figures supplied by the designer, Dr. Rohrbach, and these make the machine appear in a much more unfavorable light than the figures given by M. Herbemont, namely, a weight empty of 12,100 lb., and a useful load of 8,250 lb. As Dr. Rohrbach does not state the pay load of the Zeppelin-Staaken, we have deducted from the useful load given by him the weight of the pilot and of the fuel as reckoned by M. Herbemont. As a result the commercial efficiency factor "pounds of pay load per horsepower" is given as 1.77 as against 3.03 shown by M. Herbemont.

the biplane. (Overall length: Fokker, 36 ft. 11 in.; Spad, 29 ft. 9 in. Maximum height, Fokker, 11 ft.; Spad, 10 ft. 5 in.). The great encumbrance of the monoplane naturally complicates the hangar and field problems, to which should be added the increased difficulty of landing and taxiing a big airplane.

The second drawback of the internally trussed monoplane is that the wings are, particularly at the outer ends of the enormous cantilevers they constitute, subject to considerable deformations. This is true of all airplanes regardless of their wing truss; but in a cantilever wing it is very difficult, if not impossible, to remedy such a deformation by truing-up.

With regard to my criticism of the great initial or net weight of the cantilever monoplane, its advocates may claim that it is possible to save weight by distributing the masses inside the wing. This may be so, but the point should not be stressed, for if such an arrangement is advantageous from the viewpoint of strength, it has rather an unfavorable influence on the maneuverability of the machine. A considerable dispersion of weights brings about large moments of inertia which may be very undesirable in flight, for it makes the airplane less responsive to control.

Resuming, I believe in the monoplane type only for small and very fast machines. For weight carrying airplanes—this means commercial machines—however, we should attempt to achieve a judicious compromise between the monoplane and the biplane, eliminating, as far as possible, the drawbacks of either type.

Merger of French Aircraft Firms

The consolidation of three important French aircraft firms has just been announced. These firms are the Nieuport company, the Astra company and the Compagnie Générale Transaérienne, all of Paris, and the consolidated firm will be known as Nieuport-Astra, with head offices at 46, Boulevard Galliéni, Issy-les Moulineaux (Seine). The total capital of Nieuport-Astra is 38 million francs.

The airplanes and seaplanes produced by Nieuport-Astra will be known as Nieuport-Delage to make a clear distinction between the French firm and several foreign firms which originally built to Nieuport license, such as the British Nieuport Co. and the Nieuport-Macchi Co. of Italy, but whose products have no longer anything in common with those of the French firm. The name Delage is that of the technical director of Nieuport-Astra, who created all the war time pursuit machines of the Nieuport Co.

The airship department the firm has acquired through the incorporation of the Astra Co. will continue to function under the direction of Henri Kapferer.

The Compagnie Générale Transaérienne is an aerial transport enterprise which originally carried the French mails between Paris and London, but later transferred its charter to the Messageries Aériennes.

A Short History of Aviation in China

In the second year of Hsuang-Tung of the Tsin dynasty (1910) the General Staff at Peking selected a place about ten miles from the south suburb of Peking, known as Wu-Li-Tieng, in Nanyuan, for establishing an experimental flying field. The plan of this work was a simple one and yielded little efficiency. In the same year a Russian pilot made a flying exhibition with a Bleriot monoplane at the Legation Quarter, Peking. In the next year Mr. Vallon, a French aviator, flew with a Sommer Biplane in Shanghai. He was unfortunately killed by accident.

During the Revolution of 1911 the revolutionary leaders planned to attack Peking from the air. They ordered two Etrich monoplanes from Austria which arrived at Shanghai in the following year when the revolutionary turmoil was entirely over. About that time Mr. Li-Zu-Yin, who had just returned to China from England, made several flights in Shanghai. While in Canton Mr. Feng-Juh was accidentally killed in a flying exhibition. In 1912 Mr. Li brought the two Etrich planes to Nanking and finally moved them to Wu-Li-Tieng.

In the meantime the General Staff established a flying school at Nanyuan (which is now known as the Nanyuan Flying School). For the flying practice of students, twelve Caudron Biplanes were bought. A factory was also established for the purpose of repairing aircraft. The instruction staff of the school consisted of a Chinese and a French instructor who were assisted by two French engineers. Later the Aircraft Factory was amalgamated with the school. Since then the aeronautical training for students has never been neglected in spite of the difficulties of the importation of aircraft materials during the European war. At the end of 1918 about one hundred students were graduated from the school, of whom fourteen had passed examinations in military aviation and had flown over a distance of four hundred kilometers. In military engagements airplanes were then in active use, such as in the suppression of the "White Wolf", the relief of Mongolia and the Manchu Restoration of 1917.

Early in 1916 the Board of Navy began to draw its attention to naval aviation. Accordingly the Fuchow Submarine and Flying School was founded in the vicinity of the Fuchow dockyard. Mr. Chen-Shao-Tsiang was in charge of the school. Its faculty consisted of several students who had returned from America upon completed flying training. As the school was near the Naval Bureau, the machines of the Bureau could be easily put at its disposal. With this advantage the instructors made several sea-planes for training purposes. Unfortunately, the first plane, when tested, was wrecked owing to motor trouble.

In the winter of 1919 the Aeronautical Department was established to control all the air services of the country. Contracts were signed with the Handley Page and Vickers companies, by which the government promised to buy from the companies not less than 150 airplanes for training and commercial purposes and to employ foreign experts as pilots and instructors. In the spring of 1920, Colonel Holt, recommended by the British Air Ministry, was engaged as a technical expert to the Department for a term of two years.

Prior to the fall of 1919 there were two organizations for air administration, one was the preparatory aviation bureau known as Han-Kung-Shi-Wu-Chu, and the other was the aviation department in the ministry of communications. In the autumn of 1920, however, both of these organizations were amalgamated by a Cabinet order into the present Aeronautical Department.

Since the reorganization of the Aeronautical Department, the administrative works have been increasing every day. While General Tinn, the Director of the Department, controls all the affairs, its works are directly supervised by the Premier. Two of its accomplishments in commercial aviation are worthy of notice, one the air route between Peking and Nanyuan, which was started on April 2, and the other is the establishment of the Peking-Shanghai airline. Other air lines are also planned. It is the hope of the government that within a few years China will be covered with a net work of commercial air lines.

Excellent progress is being made on the Peking-Shanghai air line, which consists of six sections—Peking, Tientsin, Tsinanfu, Nanking, Hsuchow and Shanghai. Between these different stations it is contemplated establishing several landing fields. Pending the completion of the airdromes at the above-named stations, the Aeronautical Department of China has established a School for Air Service Administration in order to provide administrators for the airdromes. Students of the school are chosen from among the members of the Aeronautical Department and graduates of the Nanyuan School of Flying. The number of students is 30, and the courses of study which will be given them will embody only necessary and elementary knowledge in air service administration and will be finished in three months. After graduation the students will be sent to the different airdromes.

The Nanyuan Aircraft Factory has been removed to Tsin-Ho, and 20 Avros and 24 Vimy planes have been transported to the latter place for service in connection with the Peking-Shanghai air line.

The Aeronautical Department has issued an order to the effect that the flying personnel will be subjected to a medical examination every six months. The first examination this year was held in April.

New Altitude Record: 40,800 Ft.

Lt. John A. MacReady, A.S., on a Lepere C:11 Airplane Fitted with the Moss Supercharger Breaks All Previous Records

On Sept. 28, at McCook Field, Lt. John A. MacReady established on a Lepère biplane a new altitude record by reaching 40,800 ft.

The highest altitude indicated for the flight by the barographs carried was 41,200 ft., but correction for instrument error reduce this figure to 40,800 ft. (12,444 m.), and a further reduction is to be expected from the correction for air temperature difference, yet to be made by the Bureau of Standards, which will give the actually attained altitude.

The preliminary figures make it however practically certain that Lieutenant MacReady has largely exceeded the world's altitude record made by Major R. W. Schroeder Feb. 27, 1920, at McCook Field, when on his Lepère biplane he reached an altitude, corrected for instrument errors, of 38,180 ft. With the correction for air temperature difference, made by the Bureau of Standards, Major Schroeder's actually attained altitude was 33,000 ft., and this is the figure homologated by the International Aeronautical Federation as the world's official altitude record.

Lieutenant MacReady is, since Major Schroeder's resignation from the Army, Chief of the Flying Section, Engineering Division, Air Service.

Lt. John A. Macready, A. S., Chief of Flying Section, McCook Field
Photo Underwood & Underwood

Lieutenant MacReady's Own Story

The following account of the record breaking flight, written by Lieutenant MacReady for *The World,* is reproduced below by courtesy of our contemporary.

"It wasn't a record I was after when I started out on the flight which ultimately resulted in upsetting Major R. W. Schroeder's altitude record, but to test a new propeller and additional equipment on the Moss supercharger, which has been experimented with extensively at Cook Field.

"One of the functions of the Engineering Division is the development of airplanes and equipment for military use at high altitude. Continual effort is being made to develop planes which will be better than the planes of other nations for combat or observation work at extremely long distances above the ground.

"My record flight was a test flight and the record was incidental to the very valuable engine, propeller and supercharger data which were obtained.

Day Was Ideal for Trip

"The day was ideal—warm and clear— just the sort of day on which the best results are obtained at altitude. The warmer the day is the better instrument results are obtainable, because the pressure and density corrections do not bring the final height so low after all instruments are checked up and calibrated.

"After a good night's sleep to insure the best physical condition for the flight I arrived at the field and began at once to make immediate preparations toward insuring reliability of all factors which are necessary to obtain safety and comfort when undergoing the hardships which one encounters in this work. The mechanics had stripped the plane of all excess weight by cutting out unnecessary equipment and by reducing the ordinary gas capacity.

"The supply of oxygen was also reduced for the reason that in all previous flights I had flown with an observer, thus making it necessary to have an almost double supply of oxygen. Roy Langham had been my observer on all previous flights of altitude, but in this particular case it was not necessary for him to take readings, as the data to be obtained were such that I could get them myself with very few readings and observations.

Propeller Reduced to 1,100 r.p.m. on Ground

"The plane climbed remarkably well considering the original slow speed of the propeller. This propeller was a very large one, having a ground speed of only 1,100 r.p.m. whereas most propellers have a speed around 1,600. The density of the atmosphere decreases with altitude, and a propeller turning slowly at the ground would have great speed as the plane rose more and more into the lighter air. On one previous flight the propeller speeded up from 1,450 r.p.m. at the ground to 2,400 r.p.m. at 34,000 ft., which was the ceiling of this particular flight; and on another occasion, when attempting an altitude flight, the propeller flew off the plane in the air, knocking off the air speed indicator, which was attached to the wing strut of the plane, and hitting the strut, because of this excess speed.

Many Previous Attempts

"For more than a year I have been attempting to reach an altitude higher than has previously been made, but on all occasions something has broken while taking the plane up on the flight, and it has been necessary to descend in trouble. Oil pipes and bearings have broken in the engine, parts of the supercharger have flown off in the air, and the propeller has been lost in flight. The majority of these flights have been test flights around 25,000 ft. for the purpose of obtaining data.

"Everything was functioning properly during the early part of this flight on which the record was broken. As altitude was gained I became more confident that success would be attained because in all flights I have made with the supercharger none had shown such excellent functioning during the early part of the trip. All the mechanisms were working in excellent order; I began using oxygen at approximately 20,000 ft., using it very sparingly at first in order that there would be sufficient in case of emergency.

The Pilot's Equipment

"I was well protected against the cold. Over my military uniform was a heavy suit of woollen underwear and over this was a thick, heavily padded leather covered suit made of down and feathers. On my feet were fleece lined leather moccasins. My hands were covered with fur-lined gloves. My leather head mask was lined with fur and an oxygen mask was attached to it.

'The goggles were separate and were placed on the outside of the head mask. The inside of the goggles was covered with a film of secret gelatine compound which was painted over

THE LEPERE C-11 BIPLANE FITTED WITH THE MOSS SUPERCHARGER ON WHICH LT. J. A. MACREADY REACHED AN ALTITUDE OF 40,800 FT. LEFT TO RIGHT: LT. J. A. MACREADY, SANFORD A. MOSS, INVENTOR OF THE SUPERCHARGER, CAPT. G. E. A. HALLET, A. BERGER

Photo Underwood & Underwood

the glass. This gelatine compound is for the purpose of keeping the ice from forming on the inside of the goggles. It is supposed to function in this respect to a temperature of approximately 60 degrees Fahrenheit below freezing.

"In addition to the standard oxygen equipment of five flasks containing together a pressure of 2,300 lb., I had an additional emergency flask containing a pressure of 1,500 lb. which would lead directly from the flask through a tube into my mouth. At 10,000 ft. I passed through a stratum of clouds and at 20,000 ft. passed through another stratum which somewhat obscured the ground and hindered me in locating my position with respect to the geography of the ground. I did not feel any ill effects whatever until well above 30,000 ft., as I was receiving plenty of oxygen and was warm enough, but as the altitude above 30,000 ft. was reached a slight slowing up of one's senses and faculties was noticeable and this slowing up increased as altitude above this height was gained. Any exertion calls for oxygen. The faculties do not function normally.

The Need for Oxygen

"If I would stoop over to make some adjustment I would feel the need for oxygen. This need is manifest by the objects on the ground and the instruments in the cockpit becoming dim and shaky. Whenever I felt these effects I would turn on a little more oxygen, which was flowing well and freely. I was worried at no time until approximately 39,000 ft. was reached.

"At this altitude ice from my breath within the mask must have clogged the oxygen pipe, for the reason that I felt the force becoming diminished and began to feel very bad effects from its lack. I tried to blow this out and did succeed in getting a taste of ice, but could not act quickly enough to clear the entire tube, so swung over on to the emergency flask and tore a small plaster from the side of my mask placing the tube through this aperture directly into my mouth within the mask and in an instant was feeling comparatively normal.

"I was supercharging to sea level condition at 40,800 ft. (indicated) and expected that flying on the engine alone I would probably reach 7,000 or 8,000 ft. more, but this was not the case. As soon as sea conditions were lost on the engine the power was quickly diminished and I could only get 100 ft. more altitude, which was the absolute ceiling of the plane.

"While hanging suspended at an indicated altitude on the dial of 41,200 ft. the plane swung and rolled and very little action on the controls could be obtained. The controls were almost useless, as there was not enough sustaining surface to move the plane in the direction that was desired.

"It was at this point practically without control, and I held it there for almost five minutes before I was absolutely certain it would go no further. When assured of this I pulled the throttle slightly back in order to glide down, but even with this small movement the bottom seemed to drop out of the plane and down it quickly went toward earth.

Ice Blinded Goggles

Before I could make the proper readjustments the engine and radiator had cooled so quickly that there was no warmth in the cockpit from the radiator pipes running through it to warm the pilot, and as a result it became much colder in the cockpit, resulting in ice forming on the inside of my goggles, making me almost blind for the instant, and I could not handle the plane correctly for a short time. I was feeling weak and groggy and was afraid of passing out completely.

"My mind was not active and I could not think fast and correctly. However I knew that by reducing my altitude I would come back to normal and be able to make all adjustments if I could get down lower. I let the plane come down almost any way in order to get it down where I could think correctly.

"I neglected to say that just before or while I was at the supreme altitude that I remembered that Major Bane had asked me to look above me while at the great height and see if I could see the stars or any constellations and note the appearance of the sky and any peculiar features which might exist. This I did.

"I was unable to see any stars, but one fact was brought forcibly to my mind, and that was the fact that the atmosphere was extremely bright and light.

Sky Light Blue, Not Dark

"Instead of being a dark blue, as is the case at the ground, the sky was very light in color, with but a slight blue tinge.

There is far more sunlight, and it is far brighter at this altitude than closer to the ground. Another point that I neglected was the fact that while climbing to the ceiling I was circling around the City of Dayton, gradually increasing the size of circle as altitude was gained in order to always be within gliding distance of the field or of Dayton. This circle as altitude was gained increased in radius until at the top of radius of about sixty or seventy miles. I attempted to keep this circle round, with Dayton as the center, but strong, heavy winds tended to drift me in various directions. I do not know what these directions were, for the reason that my mind was not sufficiently acute to be able to know all these facts.

"The original part of the return to earth was made in a very confused state, but as altitude was lost, elements of consciousness became clearer, and at about 30,000 ft. I was beginning to feel normal again. Here I changed goggles and continued my glide toward earth, flying around at 20,000 ft. for a period of approximately twenty minutes, in order that the change in conditions from altitude to the ground would not be too sudden.

"I landed and taxied to the line where the boys in the hangars and on the field were waiting, curious to know the results of the flight. A pool had been made on the hangar, the different mechanics betting on the altitude. Dr. Moss, inventor of the supercharger, won the pool with a guess of 41,000 ft. The actual calibrated altitude of the flight, as indicated in the barograph charts, was 40,800 ft. which is the highest altitude any living being has made.

"I wish to again call attention to the fact that this record flight is but merely incidental in the chain of development of superchargers under by the Engineering Division of the Air Service and is the finished perfected work of this development. Superchargers are in such a state now, due to the developing department under Maj. T. H. Bane, Capt. G. E. A. Hallett, Dr. S. A. Moss and Adolph Berger, chief of the power plant at the field, that they should be fairly consistent at extremely high altitudes in the future.

"Yet, in my opinion altitude records will not be gauged by the superchargers themselves, but by the physical limitations of the pilots. To get much higher, greater provision of some method will have to be made or it will be impossible for a pilot to sustain the extreme hardship."

Congratulations by Major Schroeder

Major Schroeder, world's altitude record man until the F.A.I. homologates Lieutenant MacReady's record, congratulated the latter upon his flight with the following telegram:

LIEUT. JOHN A. MACREADY
MACCOOK FIELD
DAYTON, OHIO

To you, Lieut. John A. MacReady, goes the crown of icicles for having gone further up into space than any other human being and to such men as you Aviation in America owes great credit. You have placed the American Flag upon the highest pinnacle. It was done by an American Pilot, in an American built airplane and engine. How proud I am to know that you have won my crown of icy pendants in my old LePere. May you always retain and defend this most noted Aviation Record as it belongs in America and in Dayton, the home of our most famous birdmen, the Wright Brothers; may you always remember, after all they are the ones that made it possible.

Forty-thousand eight hundred congratulations to "Mac" from "Shorty".

R. W. SCHROEDER

Lieutenant MacReady replied as follows:

R. W. SCHROEDER
207 EAST OHIO ST.
CHICAGO, ILL.

Your wire touched my heart, Shorty. New improvements in your old LePere made possible the altitude attained. You are the only one who really appreciates the great difficulties and icy hardship encountered. My record is but following along the lonely path-way that you have bl

J. A. MACREADY

California-Curtiss Airplane Co. Formed

Ervine G. Diess and Earl S. Daugherty, U. S. Army instructors during the war, have formed the California-Curtiss Airplane Co. and have been appointed distributors for Curtiss airplanes for Southern California and Arizona. Field headquarters will be maintained in Long Beach, Cal., where a $50,000 plant is to be established, and an office will be located in Los Angeles. Curtiss airplane agencies, under direction of dealers such as now obtain in the automobile industry, are to be promoted for the sale of machines and the promotion of the industry.

Messrs. Diess and Daugherty have formed a partnership so as to combine two of the most prominent aviation factors in the West under one head. As a sales manager and aviator, Mr. Diess has sold probably more airplanes than any one individual in Southern California. Earl Daugherty has been an exhibition and passenger carrying pilot for years, having obtained one of the first licenses issued by the Aero Club of America through the Aero Club of California.

Daugherty Field at Long Beach, Cal., is to be improved and equipped to meet the up-to-date demands of the fast developing aviation business. Hangars with concrete floors are to be built to house ten airplanes, and there will be a runway 3,000 ft. long and 290 ft. wide, beside field offices and warehouses for storing parts yet to be erected.

The airplanes to be on exhibition at the California Curtiss Field include three Curtiss JN-4D, one Curtiss Oriole, one French Nieuport pursuit airplane, one Polson special biplane, and one Daugherty biplane.

The company will handle airplane engines beside fully equipped machines. It will also have service stations where repairs can be made and airplanes and engines overhauled. Pilot and mechanical instruction will be given. Standard Curtiss machines will be handled, including the JN-4D planes, Orioles and Seagulls, and a full stock of parts will be carried.

It is proposed to show that airplanes are adaptable for rapid intercity transportation by business men, oilmen, cattlemen, ranchmen and sportsmen, especially to reach isolated places. As an example, an airplane has been actively in use by an oil man who maintains his home in Los Angeles but makes frequent—sometimes daily—trips to Bakersfield oil fields. Another use made of the Curtiss Seagull type, sold by Mr. Diess to the Canners Fish Co., is to send out a seaplane to locate schools of fish and wireless the information to the fleet which immediately puts out from Los Angeles and Long Beach harbors for the fishing grounds. Motion picture studios and film stars have purchased a number of airplanes both for professional and private use.

Mr. Daugherty taught himself to fly at Dominguez field in 1910 along with Glenn Martin and Lincoln Beachey. He made many early exhibition flights and was one of the first to offer his services for instruction of pilots during the World War. He was instructor and test pilot at North Island and March Field. Immediately after the war he returned to his home at Long Beach, California and established himself in commercial aviation. In this capacity he carried 8000 passengers, his total time in the air being 4000 hr.

Mr. Diess was assigned to an early aeronautical class at the University of California. He was ordered overseas in 1917 with the 15th Foreign Detachment and received pilot training at the Ecole de Tours, France. He has had experience flying Nieuports, Spads, Morane-Parasols, Caudrons, Sopwiths and deHavilands. He returned home to Los Angeles in 1919 after seventeen months spent overseas and became associated with the Syd Chaplin Aircraft Corp., Los Angeles, as pilot, salesman and sales manager. For the past year he has been connected with the Curtiss Aeroplane & Motor Corp. as their Pacific Coast representative.

Marseilles-Algiers Airship Service

It is reported that a French syndicate is now preparing to organize an oversea airship service between Marseilles and Algiers and contemplate employing on this line three of the surrendered German airships, the "Nordstern", the L72 and the LZ113. At present there is no direct air line running between Paris and Marseilles, the nearest approach to this being the service between Bordeaux, Toulouse and Montpellier. It is not to be doubted, however, that as soon as the airship service is in operation the Paris-Marseilles airplane route will be opened. As the intention is to run a night service over the sea, probably the airplane service from Paris will be so arranged that the machines leave in time to connect with the airship leaving Marseilles in the evening. It should then be possible for a business man to leave London about midday, and be in Algiers the next morning.

Second German Soaring Competition

The second annual soaring and gliding competition instituted by the League of German Model Aircraft and Gliding Clubs was held early in September in the Rhön district of western Germany. The competition was endowed with 100,000 marks of prizes, of which a first prize of 30,000 marks for the longest duration flight exceeding 5 min. in which the permissible loss in height was not to exceed 164 ft. The competition, which had the support of the German air department, had for its object the experimental development of motorless soaring flight by the aid of the internal forces of the wind.

The following table, compiled from data published by *Flugsport*, gives the total number of flights made at the Rhön competition in accordance with the regulations together with the greatest *distance* flight made by each contestant and the time taken therefor. The times given do not represent the longest *duration* flight, for some of the contestants soared for a longer time on shorter flights.

FIG. 1. KLEMPERER IN AN AACHEN GLIDER SAILING HIGH ABOVE THE RHON VALLEY
Photo Wide World

General Results of the Rhon Soaring Competition

TYPE OF MACHINE	NO. OF FLIGHTS	LONGEST FLIGHT DISTANCE (FT.)	LONGEST FLIGHT TIME (SEC.)
M Bienen	4	1716	74
M Fromm	3	808	30
M Klemperer "A"	3	924	30
M Klemperer "B"	12	8514	271
B Pelzner "A"	57	2854	84
B Pelzner "B"	5	1330	45
M Koller	25	13,464	305
M Brenner	4	3729	94
M Drude	2	..	250
M Martens	3	11,814	333
B Muttray	1	4422	98

Note. The letters M and B indicate whether the machine is a monoplane or a biplane.

After the close of the competition Herr Klemperer made a remarkable flight from the Wasserkuppe to Gersfeld, during which he reached a height estimated as being at least 300 ft. above his starting point. The course of this flight, which lasted 13 min., is shown on the accompanying sketch map, reproduced by courtesy of *Flugsport*. This map shows very strikingly the extent to which Herr Klemperer was able to control his soaring machine, making sharp turns, figure-eights, and maneuvering more like a power driven craft than a glider. The length of the course of this flight was approximately 6 miles, and the air line distance 3⅛ miles.

Klemperer's machine, which is shown in Fig. 1, is similar in design to that used in last year's competition, although it probably embodies detail refinements. The 1920 model, illustrated in Fig. 2, was a thick wing monoplane in which parasite resistance was reduced to minimum through careful streamlining. The wings, the forward portion of the fuselage, and the landing gear were built up as a single unit of plywood girder work, the rear portion of the fuselage together with the tail surfaces forming another unit. The entire framework, wings and fuselage, was covered with fabric. The landing gear consisted of two rubber-sprung skids which were mounted on a pair of streamlined "trousers" projecting from underneath the wings. The pilot sat in the center of the wings in a streamlined cockpit.

FIG. 2. TOP: WING SKELETON OF THE KLEMPERER GLIDER
BOTTOM: CLOSE-UP OF THE MACHINE

The span of the machine was 30 ft., and the wing area 172 sq. ft. The weight empty was only 125 lb., from which it follows that with a pilot on board the useful load of the machine exceeded its net weight.

F. Handley Page, the British airplane constructor, who witnessed the Rhön soaring competition, is quoted by *The Aeroplane* as being greatly impressed by the work of German experimenters in this line. He is of the opinion that the German study of this branch of aeronautics is a serious scientific undertaking, and points out that the leading German aeronautical scientists, such as Professor Prandtl of Göttingen, take a deep interest in these tests. A number of machines entered were built under the supervision of professors of German technical institutes by students attending the latter.

The serious nature of the study arises in two directions. In the first place such tests allow of full scale flight trials being carried on very cheaply, as the gliders cost little to build. Second, the soaring tests afford an excellent opportunity for the investigation of the structure of the atmosphere, which should be of value not only for soaring but for power flight as well.

The Wasserkuppe, which was the scene of these trials, is a hill 3000 ft. high in a country bare of trees and free of obstructions in all directions. With a wind of any appreciable strength blowing from any direction soaring appears to be possible, for at the competition, which extended over two weeks, eleven different types of machines made a total of 120

soaring flights, the greatest distance soared being 13,460 ft. The only fatality recorded was that resulting from the fall of the Weltensegler glider on which Leusch met his death. This machine had no tail, its stabilizing means consisting merely of a strong sweepback and movable wing tips. Outside of this fatality no serious accident occurred.

Mr. Page describes one of the soaring tests made by Herr Klemperer, which he witnessed, as follows. The machine, an Aachen cantilever monoplane, was launched by a crew of about

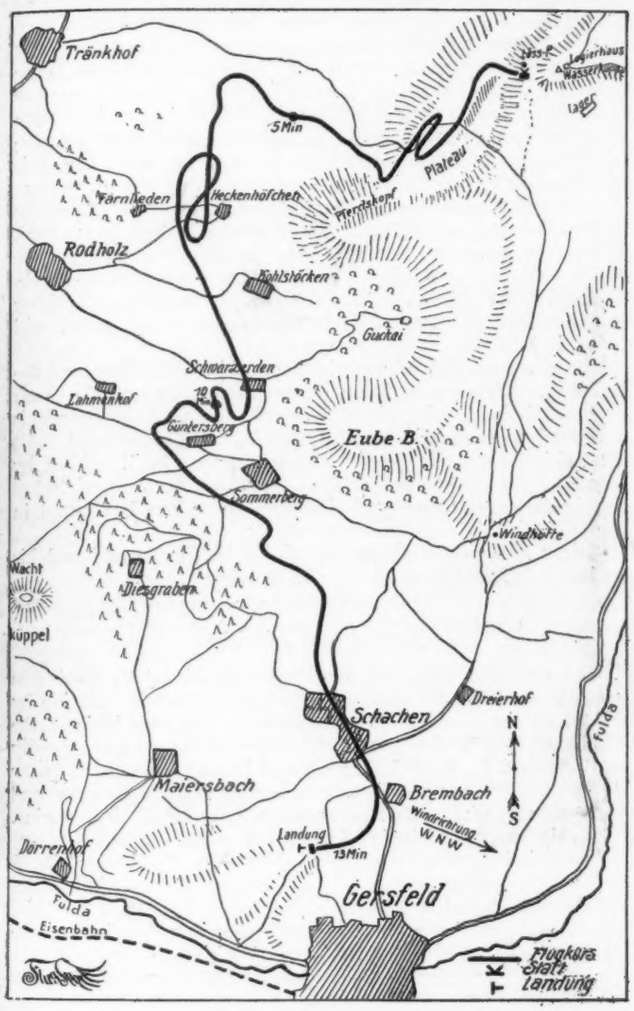


FIG. 3. KLEMPERER'S SOARING FLIGHT ON AUG. 30, 1921. LENGTH OF COURSE, 6 MILES; AIR LINE DISTANCE, 3⅛ MILES

eight men. Two of these held the wing tips, while three were at each end of a long rope passed round the heel of the skids of machine. This rope had incorporated in it lengths of rubber shock absorbers.

The men at the end of the rope walked forward till the rubbers were fully extended. Then on the pilot's signal the men at the wing tips let go, and those at the rope again walked forward. The machine started to slide over the ground, at the end of six feet was in the air, and within a second was 30 ft. up. Moving forward over the ground at a very slow speed, the pilot proceeded to climb in a series of steps corresponding to the wind gusts till he had reached a height of some 100 to 180 ft. above the starting point.

As the wind at this time was in an unsuitable direction, blowing across from the top of an adjacent peak, the machine soon ran into a down current on the lee of this peak, and descended, landing in the intervening valley.

According to the latest news from Germany a new soaring duration record was made on Sept. 13 at Bischofsheim by Herr Harth, who remained in the air 21 min., rising 450 ft. over his starting point.

Foreign News

Colombia

The trip from Bogota to Barranquilla, a distance of nearly 900 miles, can now be made in 21 hours, when it formerly took two weeks or longer. The traveler can go by train from Bogota to Girardot, and from there he can take one of the two new seaplanes just received by the Colombo-German Aerial Transport Co.—of greater capacity for conveying passengers than those formerly in use—which will take him down the Magdalena to Barranquilla. A weekly mail and passenger service will be established immediately.

Work has been started on the road to Enea, which will connect the town of Manizales with the aviation field to be established in that vicinity. The field will be 2,700 ft. in length.

Mexico

A commercial service is to be begun between Ciudad Juarez and the city of Chihuahua. The airplanes, which will be piloted by American aviators, will cover the distance of 360 kilometers in two hours, while the railroad requires 10 hours for the trip. Until the landing field in Ciudad Juarez is completed the aviators have permission to use the one at Fort Bliss in El Paso, just across the border.

Ecuador

A presidential decree has created in Guayus Province a military aviation school, the first in the Republic. Fifteen students will be prepared as pilots, 10 as mechanicians and 10 as mechanicians' helpers. Ten civilian pupils will also be received. Two Italian pilots are instructors.

The Condor, a new aviation field, has been opened at Eloy Alfaro, near Guayaquil. One of the airplanes is the gift of the Italian colony, another of the Syrian colony, and a third of the university students.

Argentina

Pilot Luis Barrufaldi at Palomar field in a 300 hp. Bristol biplane, with his mechanician as passenger, made the altitude of 7,400 meters in an hour and a half. This is considered the South American record for altitude with a passenger.

New York—Havana Flying Boat Serice

A bi-monthly aerial passenger service between New York and Havana, Cuba, was inaugurated on Sept. 22 by Aeromarine Airways, when their 6-seater flying boat "Presidente Zayas" left the airport at 82nd Street and Hudson river en route for Havana.

The flying boat, a converted Navy HS-2L type, made stops at Atlantic City, Beaufort, S. C., Miami, Fla., and Key West, and arrived at the Cuban capital on Sept. 25. The flying time for the total distance of 1521 miles was 19 hr.

The passengers were Miss Dona Moberly, Miss Gladys Carruthers, F. Lopez de Haro and Alegario Montes. D. G. Richardson and Richard Greisinger were the pilots. A delegation from the Aero Club of Havana and representatives of the Cuban government welcomed the craft when it arrived.

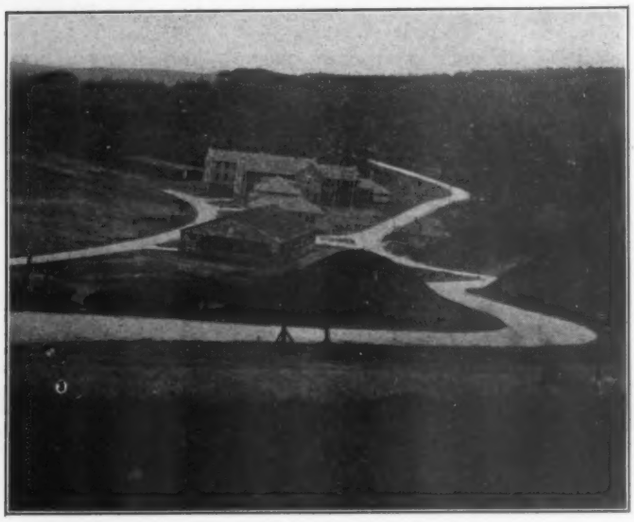
The flight of the Aeromarine "Presidente Zayas" opens the Southern season of the Aeromarine Airways. The present schedule calls for the departure of two boats a month for Havana from New York City; this will undoubtedly develop into a weekly service before the first of the year. Last season the price of a flying boat ticket to Havana was $750. Today the fare has been reduced to $250 per passenger which compares more favorably with the railroad price which is around $140.00.

Under the new schedule it is possible for passengers to board an Aeromarine flying boat in New York in the morning; fly to Beaufort, S. C., the first day, transfer there the following morning to another boat which has been held in waiting and fly to Miami, where another transfer is made and from there on to Key West and Havana, arriving in Havana the afternoon of the second day. By railroad and boat a passenger does not arrive in Havana until the morning of the fourth day.

Crissy Field, San Francisco, Calif.

Crissy Field on the military reservation at San Francisco, is ideally situated at the foot of the hills, just inside the Golden Gate, and affords protection for both the Golden Gate and the Bay of San Francisco. The grounds occupy the site of the former Panama-Pacific International Exposition. The buildings are all of reinforced concrete and steel construction and are fireproof. They consist of the following: Two hangars, each 160 ft., long and 110 ft. wide, garage, and repair shop, machine shop, store room, testing house, armory, boat house, general offices, barracks and officers quarters.

One of the hangars was designed for the use of seaplanes, having a concrete runway extending to the bay. Special dolleys have been provided to fit under the pontoons of the sea planes, and are towed by small gasoline tractors. One side of each hangar has been temporarily boarded up, as provisions have been made for adding an additional hangar



One Corner of Crissy Field, San Francisco

which will double the capacity. Rolling steel doors are arranged to close the entrance to the hangars. In opening, one half the doors are rolled to the right and the other half to the left. The doors are in twelve sections and the entrance is 20 ft. in height. The hangars are lighted by wire glass windows, and a monitor which extends the entire length of the buildings. By means of chain and pulleys all windows in the montitor can be opened simultaneously for ventilation. Thirty-two high power electric lights with reflectors are supported overhead which light the interior and enable work to be carried on at night.

Gasoline is supplied from two 10,000 gal. tanks and is delivered, by electrically operated pumps, to the service stations, one of which is at the front of each hangar. Two hand pumps are provided for use in case of emergency.

Fire protection has been given special attention, fire hydrants being provided at each hangar, which are connected with the Presedio fire mains. Alarm boxes are arranged on the front of the hangars. Between the hangars there is a special building for hose carts and fire extinguishers are placed at various points throughout the buildings.

Work benches are arranged along one side of the hangars, and electric sockets are provided for operating electrically operated tools. The store room, machine shop and testing house are built between the two hangars, thus facilitating repairs, and the delivery of parts. Each hangar will accommodate twelve machines. There is a boat house for the speed boats and a garage for trucks and trailers used by the department.

A photographic dark room is carried on a trailer, which is towed by a truck carrying a 3-K.W. generator direct connected to a 54 hp. Kelly Springfield engine. This equipment provides current for the flood lights and for the developing lights. A total of 40 lights ranging from 110 watts to 500 watts each are carried by the truck and trailer.

A Packard truck and two trailers are equipped for bringing in wrecked machines. The trailers are equipped with steel stands having padded bumpers to protect the wings. By means of these stands wings can be carried without being damaged. Two bodies are provided for the truck, the regular truck body and a special wide body, which is provided with two steel arms projecting from each side, which are capable of lifting a wrecked machine off the ground and placing it on the truck.

A G.M.C. bus is used in transporting the men from the field to the street car station, and to various points on the field. There is now under construction an electrically operated crane which will be mounted on a G.M.C. truck for bringing in wrecked automobiles. This crane will be capable of raising the wreckage of a truck on to the service truck, which will bring it into the garage for repairs.

The garage is lighted by windows, which extend around the building. There are three entrances to the garage, each entrance being equipped with steel doors. The garage is equipped with special wooden stands with differential hoist for raising an entire truck. The engine can be lifted out by means of the differential hoist and lowered on to special steel repair frames so arranged that the motor can be turned in any direction.

Crissy Field is in charge of Major H. H. Arnold and his assistant is Lieutenant Harry A. Halverson.

New Army Airship

The first test flight of the Army airship A.S. 1504 was recently made at the Goodyear Akron Air Service Station by Flight Officer Lieut. G. W. McEntire. This airship is of the Goodyear Pony Blimp, or "AA", type. It has a gas capacity of 35,000 cu. ft., is 95.5 ft. long, and has a maximum diameter of 28 ft. The car accommodates two or three passengers and is equipped with a Lawrance three-cylinder 50 hp. engine. The ship has a cruising radius of 450 miles.

This airship was manufactured by The Goodyear Tire & Rubber Co. and assembled at the Goodyear Akron Air Station. Lieutenant McEntire subsequently flew her to Dayton, Ohio, where she will be used by the Engineering Section of the Balloon and Airship Division for experimental purposes.

Cotton Airplane Fabric

W. Harris Thurston & Co., Inc., 116 Franklin Street, New York, are selling considerable quantities of cotton airplane fabric to airplane manufacturers. This material is tested and guaranteed to grade A, specification 16,004. It represents a large quantity of surplus airplane cloth purchased from the Air Service, by this company.

During the War, W. Harris Thurston was a major in the Air Service and had immediate supervision of the specifications for, and production of, cotton cloth for airplanes. Prior to entering the service, Mr. Thurston was with Clarence Whitman and Co., the firm which originally developed cotton to a point where it could be substituted for linen for large production during the war. Mr. Thurston at that time was closely associated with this development work.

New Speed Record

Sadi Lecointe, world's speed record holder, on Sept. 26 beat his own record on a Nieuport-Delage racing biplane by flying at speed of 330 km.p.h. (204.9 m.p.h.). The flight took place at Villesauvage airdrome, near Etampes, where the last Gordon Bennett Aviation Cup Race was held, and it was witnessed by representatives of the Aero Club of France.

International Aero Congress, Omaha, Nov. 3-5

The Aero Club of Omaha is organizing for Nov. 3 to 5 an International Aero Congress, which assumes particular importance from the fact that it will be held in conjunction with the second competition for the Pulitzer Trophy. Beside this race there will be seven flying events, one of which will serve as a competition for the new Larsen Trophy, donated by John M. Larsen, as an efficiency criterion for commercial airplanes.

Program of Flying Events

The program of flying events is as follows.

November 3.

Event No. 1. Pulitzer Trophy Race. First prize, $3,000; second prize, $2,000; third prize, $1,000. Free-for-all race for airplanes of 140 m.p.h. minimum speed. Distance, 150 miles.

Event No. 2. Acrobatic Contest. First prize, $250; second prize, $150; third prize, $100. Free-for-all contest for all types of airplanes. Contestants must climb 3000 ft. directly over field before starting acrobatics.

November 4.

Event No. 3. Larsen Trophy Race. First prize $3,000; second prize, $2,000; third prize, $1,000. Race for all types of commercial airplanes. Distance, 250 miles.

Event No. 4. Free-for-all race. First prize $300; second prize, $150; third prize, $125. Race open to JN4's, OX5 Standards, Orioles with Curtiss OX5 motor, Canucks and other airplanes with a speed of from 60 to 75 m.p.h. Distance, 90 miles.

Event No. 5. Free-for-all race. First prize, $300; second prize, $150; third prize, $125. Race open to JN4H, C6 or K6 Orioles, Laird Swallow, Bellanca CE, Lark, C6 or K6 Standard or equals with a speed of from 75 to 90 m.p.h.

Event No. 6. Parachute jumping contest. First prize, $200; second prize, $100; third prize, $50. Open to all parachute jumpers.

November 5.

Event No. 7. Open race. First prize, $1500; second prize, $750; third prize, $375. Closed handicap. Open to all machines. Distance, 150 miles.

Event No. 8. Bombing contest. First prize, gold cup; second prize, silver cup. Open to Army and Navy airplanes only.

Entries for Pulitzer Trophy

That the Pulitzer Trophy race will be closely contested may be seen from the preliminary list of entries as it appears to date. S. E. J. Cox, of Houston, Tex., heads the list with two modified Curtiss "Texas Wildcat" racers, which are to be piloted by C. B. D. Collyer and Clarence Coombs, respectively. These machines are understood to be triplanes and are powered with the 450 hp. Curtiss C-12 engine, while two airplanes of similar type, but rigged as biplanes, are to be entered by the U. S. Navy. The Aero Club of Utah has pledged to enter a Thomas-Morse racer piloted by E. D. Steely, while another entrant is foreshadowed by the Flying Circus of Sioux City, Iowa. Four other entries, which have not as yet been specified, are likewise expected to participate in the Pulitzer Trophy race.

The Larsen Trophy Race

The Larsen Trophy race, full details of which are shortly to be issued by the Aero Club of America, will, as has been said before, be an efficiency contest for commercial airplanes. The efficiency (E) will be calculated by the formula

$$E = \frac{(W - T)\,S}{G}$$

in which W indicates the weight loaded, or gross weight, T the weight empty, or net weight without fuel, S the speed in miles per hour made over the course, and G the amount of fuel consumed. The race will be open to all types of airplanes.

The course of the Larsen Trophy race will be 250 miles in length, from Omaha to Des Moines and return. Most of the other events will be run over a 30-mile course starting from Omaha. The Omaha airdrome has been put in shape at a cost of nearly $50,000, the city spending about $30,000 in the construction of a sewer which traverses the field.

State Air Organization

A big feature of the congress lies in the state organization work being done. Aeronautical men in various states are organizing into state air associations to send delegates to the Omaha congress, where it is intended to form a national association in cooperation with the Aero Club of America and other existing bodies.

Captain H. E. Hartney, executive secretary of the Aero Club of America, who visited Omaha recently, was very enthusiastic about the possibilities of the organization work toward the advancement of American aviation, and promised the club's cooperation in every way to make the congress a success.

With a view to gathering the largest possible attendance representative of America aviation, the Aero Club of Omaha has approached over 10,000 aviators with insistent invitations to attend the Aero Congress. The preliminary returns show that a large percentage of this number will be present. Nearly one hundred fliers of the Middle-West have announced their intention to come to Omaha with their machines to participate in the various flying events.

The organizers also have extended invitations to many notables, the list including General Pershing, the Prince of Wales, Marshal Foch, General Diaz, Field Marshal Sir Douglas Haig, Col. William A. Bishop, V. C., Capt. Eddie Rickenbacker, Maj. R. W. Schroeder, and many others.

A commemorative medal, designed by Gutzon Borglum, will be presented to all participants in the International Aero Congress.

Entry blanks for participation in any of the races or contests of the International Aero Congress in Omaha may be had by writing to the Omaha Aero Club, Hotel Fontenelle, Omaha, Neb., U. S. A.

Other Features of Interest

While the flying events of the International Aero Congress will naturally constitute the main attraction for airmen and aeronautical people in general, the Aero Club of Omaha has made preparation to add to these professional events various entertainments.

For the airmen attending, group reunions and banquets together with all the types of entertainment dear to the fliers' hearts will be given and on the last night, the closing feature will be the "Destruction of Courcellette", an aerial night pageant written by Rupert T. Hughes and Eddie Deeds. This is to be produced under the direction of the latter with a cast of seventy-five people. The supposed French village will be destroyed by "Hun planes" from the air which are subsequently downed by an American ace. The illuminating effects will be under the direction of Mr. W. D'A. Ryan, the designer of the "Tower of Jewels" of the San Francisco Exposition. The General Electric Co. is supplying an eighty million candle power searchlight to illuminate the air battle, which in itself will be a feature attraction.

The congress will also enable aircraft manufacturers to concentrate their products in one city. The middle west offers an unusual field for aircraft sales, especially in the line of airplanes and flying boats, as the market for the latter is still untouched by the dealers. The Omaha field will present a wonderful landing place for flying boats and seaplanes.

Many manufacturers are availing themselves of the opportunity of obtaining the list of fliers which has been prepared at considerable expense by the Aero Club of Omaha, and which consists of names and addresses of former fliers, fliers and men interested in aviation in various parts of the country. The lists are available to all exhibitors.

"Who's Who in American Aeronautics"

(Copyright, 1921, by The Gardner, Moffat Co., Inc.)

Every week, AVIATION AND AIRCRAFT JOURNAL prints the biographical sketch of men who are prominent in American Aeronautics. These sketches will be published later in pamphlet form. As so many of the officers change their stations often, it is believed that a semi-annual issue will be necessary. In compilations of this character many errors and ommissions occur. It will be appreciated of corrections are sent to "Who's Who" Editor.

Harry Starkey Aldrich

ALDRICH, HARRY STARKEY, Student; born, Kalamazoo, Mich., May 17, 1895; son of Byron Aldrich and Louise (Starkey) Aldrich; married, Keitha Bolles, Feb. 2, 1918.
Educated: Detroit Central High School; B. B., E. M., Aug. 1917, Michigan College of Mines. Houghton, Mich.
Aeronautical Activities: 1917, Ground School, Columbus, Ohio; Rockwell Field, San Diego, Calif.; passed R. M. A. tests and commissioned: arrived, France, March 1918; sent to Issoudun for advanced training; June 1918, 1st Aero Squadron as pilot; July to Sept., 1918.
Flying Rating: Reserve Military Aviator, Feb. 1, 1918.
War Service: May 5, 1917 to June 12, 1919 in army.
War Honors: Croix de Guerre, given for an unusually difficult photographic mission executed, Aug. 11, 1918, during Aisne-Marne offensive.
Present Occupation: Retraining under Federal Training Board.
Address: 1215 Fifth St., Coronado, Calif.

Louis Thomas Barry

BARRY, LOUIS THOMAS, Electrical Engineer; born, Olean, N. Y., March 31, 1893; son of John Barry and Abbie (Meaney) Barry.
Educated: Olean High School; B. S. 1920, Electrical Engineering, Carnegie Institute of Technology.
Professional: Salesman, Electric Service Supplies Co., 1920 to date.
Aeronautical Activities: Commissioned 2nd Lieut., Air Service, from Engineering Officers Training School, Boston Tech., July 1918; duty at Barron Field to April 1919.
Flying Rating: Reserve Military Aviator.
War Service: July 1918 to Oct- 1919.
Member: Army and Navy Club; Aero Club of America.
Present Occupation: Salesman, Electrical Apparatus.
Address: 829 Oliver Bldg., Pittsburgh, Pa.; home, 810 Garden Ave., Olean, N. Y.

William Terry Badham

BADHAM, WILLIAM TERRY, Coal mining; born, Birmingham, Ala., Sept. 27, 1895; son of Henry Lee Badham and Helen Jenette (Terry) Badham.
Educated: Lawrenceville Preparatory school; Ph. B., 1917, Yale University.
Professional: Coal mining business since 1919.
Aeronautical Activities: None other than war service; American Ace officially credited with destructon of 5 German airplanes.
Flying Rating: Aerial Observer.
War Service: With French Squadrons from Jan. to May 1918; with American Forces from May 1918 to Jan. 1919.
War Honors: Distinguished Service Cross.
Present Occupation: Superintendent, Wind Rock Coal and Coke Co.
Address: 1312 American Trust Bldg.; home 1221 Whitaker Street, Birmingham, Ala.

James Knowles, Jr.

KNOWLES, JAMES, Jr., Manufacturing; born, Cincinnati, Ohio, Dec. 27, 1896; son of James Knowles, Sr. and Laura Knowles.
Educated: Peabody Grammar School, Cambridge, Mass.; Andover School; Volkman School, Boston, Mass.; A. B. 1919, Harvard University.
Professional: United Drug Co., 1919 to date.
Aeronautical Activities: Ground School, Columbus, Ohio; in training at Tours, France, Aug. to Oct., 1917; Issoudun and Cazaux, France, Oct. to Feb. 1918; in Chateau Thierry, St. Mihiel and Meuse-Argonne Offensives with the 95th Aero Squadron.
Flying Rating: R. M. A.
War Honors: Croix de Guerre with Palm; Distinguished Service Cross; Citation, Sept. 11, 1918; Aero Club of America; Medal.
Present Occupation: United Drug Co. sales-department.
Address: 63 Leon St., Boston, Mass.; home 51 Brattle St., Cambridge, Mass.

David Todd

TODD, DAVID, Professor; born Lake Ridge, N. Y., March 19, 1855; son of Sereno Edwards Todd and Rhoda (Peck) Todd; married, Mabel Loomis, March 5, 1879.
Educated: Public schools, Brooklyn, N. Y.; 1870-1872, Columbia College; (1873-1875) A. B. 1875, Amherst College; A. M. 1878, Ph. D. 1888.
Professional: Assistant U. S. Transit of Venus Commission 1875-1878; Professor of Astronomy Smith College 1882-1887; Professor of Astronomy and Navigation, Amherst College 1881- 1920; Professor Emeretus since 1920.
Aeronautical Activities: Started flying in free balloons 1909-1910; Many flights in connection with astronomical studies.
Member: Aero Club of America; President of Amherst Aero Club.
Present Occupation: Retired.
Address: Matsuba, Cocoanut Grove, Fla.

Lewallace Wendell Taylor

TAYLOR, LEWALLACE WENDELL, Missionary; born, Three Oakes, Mich., Jan. 10, 1895; son of William Landon Taylor and Dora Amelia (Smith) Taylor; married, Frances Filson, Dec. 7, 1918.
Educated: Grammar and high school; A. B 1920, Hastings College, Hastings, Nebr.; M. A. 1921, University of Chicago; two years, McCormick Theological Seminary.
Aeronautical Activities: Commissioned 1st Lieut., Aviation Section, Signal Reserve Corps, Nov. 8, 1917; two months with 54th Cie d' Aerostiers, French Army in Champagne, beginning Jan. 2, 1918; one month with 84th Cie d' Aerostiers; duty with 2nd Balloon Co. in Toul and Chateau Thierry sectors, three months; Souge Balloon School, one month; duty with 69th Balloon Co., three months in St. Miheil salient; dirigible flying at Pensacola and Langley Field, eght months.
Flying Rating: Balloon Observer, 1918; spherical Balloon Pilot License; Dirigible Balloon Pilot License.
War Service: Army, May 5, 1917 to Oct. 10, 1919; overseas one year.
War Honors: Special commendation in communication sent by Commanding General, 26th Division, June 27, 1918.
Present Occupation: Missionary.
Address: Vengurla, India; home St. Edward, Nebr.

Harold Belzer Schuck

SCHUCK, HAROLD BELZER, Merchant; born, La Porte City, Iowa, April. 25, 1893; son of George H. Schuck and Rebecca A. Schuck.
Educated: Graded schools; high school; University of Minnesota.
Professional: Agricultural interests; grain and commission business; banking interests.
Aeronautical Activities: Trained as 2nd Lieut. Eng. Officer A. S. A., at M I. T., Feb. to June 1918; trained as Pilot at Call Field, June to Nov. 1918.
Flying Rating: Reserve Military Aviator.
War Service: Mexican Border Service, 1916; World War, Rainbow Division, 151st F. A., Jan. to June 1918.
Present Occupation: Grain merchant.
Address: Girard Station, Crookston, Minn.

Richard C. Kerr

SCHUCK, HAROLD BELZER, Merchant; born Selma, Calif., July 23, 1896; son of William Henry Kerr and Annie (Stone) Kerr.
Educated: Grammar and high schools, Coalinga, Calif.; A. B. 1919, University of California.
Professional: Petroleum Geologist.
Aeronautical Activities: Ground school, Mass. Inst. of Tech., 1918; Instruction, U. S. N. Air Station, Pensacola, Fla.
Flying Rating: Naval Aviator. (Ensign).
War Service: U. S. Navy, Dec. 1917 to Jan. 1919.
Present Occupation: Petroleum Geologist.
Address: 2617 Durant Ave., Berkley, Calif.

Arthur Vance Wortman

WORTMAN, ARTHUR VANCE, Newspaper Publisher and Writer; born, Cass County, Nebr.; son of Otha J Wortman and Ada Carrol (White) Wortman; married, Josephine McKeown, April 12, 1920.
Educated: Public schools of Ashland, Nebr.; high school; Nebraska University.
Professional: Publishing and editorial work, 1912 to date.
Aeronautical Activities: Air pilot, July 1918 to Aug. 1919; Instructor K. F. T., 1919; Assistant Engineer Officer.
Flying Rating: Reserve Military Aviator.
War Service: June 1917 to Aug. 1919.
Present Occupation: Newspaper publisher and writer.
Address: 139 North Fourth St.; home 323 North Sixth St., Hebron, Nebr.

Elijah Floyd Wright, Jr.

WRIGHT, ELIJAH FLOYD, Jr., Student; born, Woodlake, Ky., May 16, 1898; son of Elijah Floyd Wright, Sr. and Mary Nellie (Duggan) Wright.
Educated: Preparatory school; Cumberland College; A. B. 1921, Princeton.
Professional: Court stenographer.
Aeronautical Activities: Training at Hazelhurst Field, Gerstner Field, and Carlstrom Field; Flying Instructor, Dorr Field; Flying Instructor Gerstner Field.
Flying Rating: Reserve Military Aviator.
War Service: Sept. 1917 to Jan. 1918.
Member: Princeton Aero Club.
Present Occupation: Student.
Address: 322 West First North Street, Morristown, Tenn.

Frederick LeRoy Martin

MARTIN, FREDERICK LeROY, Major, Air Service; born, Liberty, Ind., Nov. 26, 1882; son of John Charles Martin and Nancy Jane Martin; married, Grace Margaret Griffiths, June 26, 1912.
Educated: Liberty High School, 1904; B. S. in M. E. 1908, Purdue University.
Professional: Appointed 2nd Lieut., C. A. C., 1908; 1st Lieut., C. A. C., 1911; Capt., C. A. C., 1916; Major, Air Service, 1920.
Aeronautical Activities: U. S. Air Service.
War Service: Served with Supply Division, Oct. 1917 to Aug. 1918, also from Feb. 1919 to Aug. 1920; overseas, O. C. of A. S., Aug. 1918 to Jan. 1919.
Present Occupation: Major, Air Service.
Address: Carlstrom Field, Fla.

Lowell P. Lamoreaux

LAMOREAUX, LOWELL P., Insurance; born Minneapolis, Minn., March 4, 1894; son of Lowell A. Lamoreaux and May (Covell) Lamoreaux; married, Elizabeth Wood Johnson, June 5, 1914.
Educated: Grammar and high schools.
Professional: Insurance, 1915-1919; salesman, 1919-1921; insurance, 1921 to date.
Aeronautical Activities: Training at Rockwell Field; Ground School, Berkeley, Calif.; Camp Dick; Gerstner Field; Instructor, Pursuit Course.
Flying Rating: Reserve Military Aviator.
War Service: Aug. 1917 to Dec. 1918.
Present Occupation: Insurance business.
Address: 419 McKnight Bldg.; home, 59 Seymour Ave., S. E., Minneapolis, Minn.

Edmund Pendleton Gaines

GAINES, EDMUND PENDLETON, Student, born, Bradley, S. C., Feb. 15, 1896; son of William Joseph Gaines and Anna Maria Gaines.
Educated: Edgfield public schools, Edgfield, S. C.; B. S. 1921, University of South Carolina.
Aeronautical Activities: Cadet at Wright Field; 1st Lieut., Fort Sill; Aeriel Gunnery Instructor, Fort Worth; Senior Flight Commander, 186th Aero Squadron in France and Germany, 1918-1919.
Flying Rating: Reserve Military Aviator.
Member: Aero Club of America.
Present Occupation: Student.
Address: University of South Carolina; home 821 High Street, Columbia, S. C.

B. Crowell Heads Aero Club of America

Benedict Crowell, former Assistant Secretary of War, who headed the American Aviation Mission to Europe in 1919, has been elected president of the Aero Club of America to fill the vacancy caused by Myron B. Herrick being appointed American ambassador to France.

Mr. Crowell, who has displayed valuable activity in behalf of American aeronautics in connection with various aviation bills before Congress, was born in Cleveland, Ohio, Oct., 21, 1869, the son of William and Mary (Benedict) Crowell. He received his early education at St. Pauls School, Concord, New Hampshire, and graduated from Yale in 1891. In June, 1918, Yale University conferred upon him the degree of M.A.

Prior to the war Mr. Crowell was engaged in mining engineering and in the building construction and banking businesses in Cleveland, and was Civil Service Commissioner of that city.

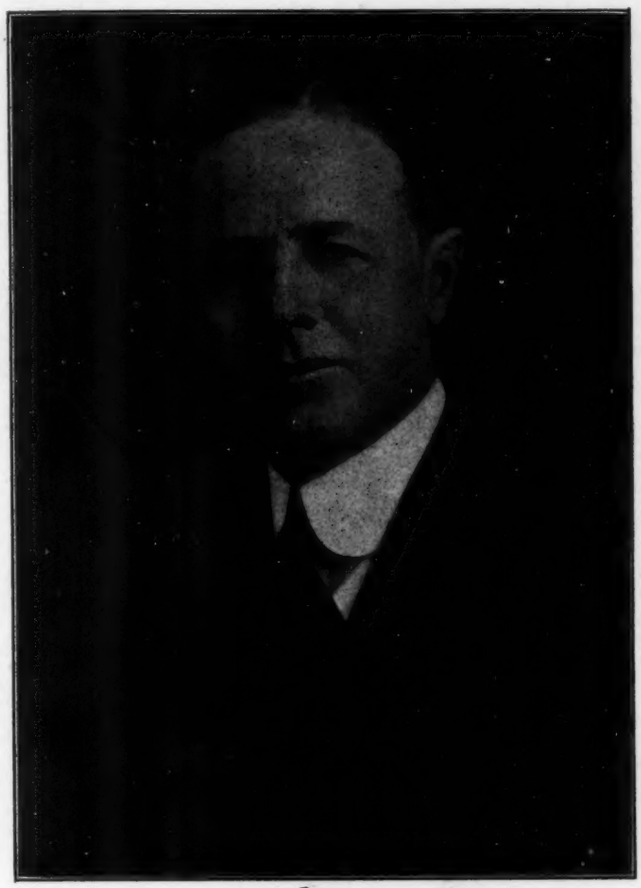
In 1904 he was married to Miss Julia Cobb, daughter of Mr. Lester Cobb of Cleveland, and has two children, Florence and Benedict, Jr.

In September, 1916, Mr. Crowell was appointed a Major in the Quartermaster Corps and in November of that year was made a member of the Kernan Board of the War Department to report on Munitions of War and Arsenals. In March, 1917, he came to Washington as an associate of Mr. Frank A. Scott of the General Munitions Board.

On June 1, 1917, he was called to active service in the Ordnance Department and in August of the same year was transferred to the Engineer Corps, Panama Canal Office, where he was Chief of Office and Purchasing Officer. He accepted the appointment as Assistant Secretary of War in November, 1917, and resigned July 1, 1920.

In addition to his general administrative duties as Assistant Secretary of War, Mr. Crowell was appointed Director of Munitions in August, 1918, and up to the time of his resignation was in direct charge of those activities and the general administration of the War Department.

Mr. Crowell is member of the following clubs and societies: University Club, Yale Club, Racquet and Tennis Club, Aero Club of America (New York); Metropolitan Club, Army and Navy Club, Chevy Chase Club (Washington, D. C.); Union Club (Cleveland); American Institute of Mining and Metallurgical Engineers; The Iron and Steel Institute.



BENEDICT CROWELL, RECENTLY ELECTED PRESIDENT OF THE AERO CLUB OF AMERICA

4300-lb. Bomb Dropped at Aberdeen

The first test of the 4300-lb. demolition bomb which was designed and constructed by the Ordnance Department for use from aircraft took place on Sept. 28, at Aberdeen proving grounds. The giant bomb, which is believed to be the largest in existence today, was dropped by a Handley Page bomber piloted by Captain Norbert Carolin from an altitude of 4100 ft. It hit within the area marked off on the ground and left a crater 100 ft. in diameter by 30 ft. deep.

The experiment was witnessed by a number of prominent air service officers of the Army and Navy from an elevated platform, 1500 ft. from the spot. They are said to have felt no unpleasant sensations, as the bomb was dropped into marshland.

The 4300-lb. bomb was specially developed for the bombing tests on the old battleship Alabama, but although it was completed in time, a delay in the shipment of the special bomb racks built by McCook Field made it impossible to use it against the warship. The bomb is 14 ft. long, 23 in. in diameter, and carries 60 per cent of its weight in T.N.T. The steel cases for the first three bombs of this type were fabricated at one of the Army arsenals and filled with T.N.T. at Picitiny, from where they were shipped to Aberdeen proving grounds. There they were completed by the addition of booster charges and detonators.

The mounting of the bomb on the Handley Page was effected by rolling the missile on a low truck under the landing gear, and then by jacking it up until the fingers of the bomb rack secured a strong clutch, after which the truck was removed. Considerable precautions were taken in handling the huge missile, although its design incorporates the well known safety device of aircraft bombs which prevents their premature explosion. That is to say, the bomb cannot explode before the pilot pulls a wire leading through a shaft in its tail, as this wire prevents the vane from rotating and so arming the bomb.

Captain Carolin has had extensive experience in releasing large bombs, as he has dropped all the large experimental "eggs" constructed by the Ordnance Department. Beside Captain Carolin, the crew of the Handley Page which dropped the 4300-lb. bomb consisted of Sergeant Smink and Corporal Avariet.

Aeromarine Operations Will Extend to Texas

In the interest of securing the latest information upon flying boat transportation, Oscar F. Holcombe, Mayor of Houston, Texas, on September 19 consulted with Aeromarine Airways officials at the Times Building, New York. Mayor Holcombe and Mrs. Holcombe were also given their first flight —a trip around New York Harbor—in the HS-2 boat which recently completed a long tour from New York to Chicago via the Great Lakes and return.

Upon his return to Texas Mayor Holcombe expects to urge the Chamber of Commerce to take up actively the question of commercial air transportation over Gulf waters.

The City of Houston and other Gulf ports will have an opportunity to vizualize the possibilities of flying boat transportation in the near future, when the "Santa Maria" of the Aeromarine-Navy F-5-L fleet arrives at Texas ports as it is expected to do within the near future. The "Santa Maria" after a flight from Chicago via the Illinois and Mississippi rivers was expected to reach New Orleans Saturday, September 24. From that city the Santa Maria will proceed to Texas Gulf ports. This flight is a continuation of an air voyage by the same ship which began at Havana, Cuba, early the past summer, and extended to Washington, D. C., New York and Chicago via the Great Lakes.

A Letter

The letter which follows was addressed by its writer to Ralph C. Diggins, Chicago, but as it indirectly also concerns AVIATION AND AIRCRAFT JOURNAL the writer kindly supplied us with a copy of it. Comment of any kind seems superfluous, as it might only spoil the exquisite humor of this letter.

Toronto, Ont. Sept. 20th, 1921

Mr. Ralph C. Diggins,
140 North Dearborn St.,
Chicago, Ill.

My dear Mr. Diggins:-

I note with much interest your very creditable flying record made by your Chief Instructor James Curren during the month of July, as noted on page 306 of AVIATION & AIRCRAFT JOURNAL issue of Sept. 12th 1921.

The most striking feature of your statement is the fact that in order to accomplish same it would be necessary for the pilot in question to fly seven hours and twelve minutes per day, thirty days per month, to get in two hundred and sixteen flying hours. It would be further necessary for him to curtail the duration of his flights to four point ninety-eight minutes to accomplish twenty-six hundred flights in two hundred and sixteen hours.

It is safe to assume that it takes four minutes to bring the machine in after landing and transfer pupils. According to your figures eighty-seven flights are made per day by one pilot, allowing four minutes for landing and changing pupil it would consume five hours and forty-eight minutes.

From the foregoing it is obvious that the pilot would be in actual service seven hours and twelve minutes plus five hours and forty-eight minutes which is a total of thirteen hours. Assuming that it is necessary for the pilot to sustain life it would be necessary for him to partake of the bread of life three times per day, he would require about half an hour per meal, making a total of one hour and a half, this would then consume fourteen and a half hours of the pilots time.

Unless more than one machine is used by this particular pilot, it is evident that your machines are not subject to running repairs, inspection, or even time to fill with gas and oil, most planes with which I have come in contact require all of these mentioned attentions.

Unless the pilot sleeps in the machine it would take him one hour each day to make his way home and return to the aerodrome including removal and replacing of his clothes, pilot's time is now fifteen and half hours.

In most flying circles it is an acknowledged fact that a pilot should have a certain amount of recreation in order to keep him mentally efficient, the average workman under our democratic administration counts eight hours recreation and eight hours sleep. However since the pilot is a superman he ought to be satisfied with four hours in which to perform his personal business and recreation.

This now accounts for nineteen and a half hours of his personal time and would leave him four and a half hours to court the goddess of slumber, and give his constitution a chance to repair the tissues of his weary body.

The odd day in July has been omitted in order that the pilot may rest on his laurels and offer up sincere thanksgiving to his particular God for his abnormal performance and entreat his Maker for another flock of angels to carry him around for the ensuing month.

In closing we wish to compliment yourself, your pilot and publicity agent upon their veracity and strict adherence to the truth, trusting that imagination of your organization will not be in any way discouraged by this flattering epistle we wish to remain,

Yours in doubt,
W. Leach.
Per U. J.

P. S.

We forgot to mention the fact that as your pilot has the audacity to actually fritter away approximately four and a half hours in sleep, we would release him and try to secure a pilot who does not want to spend his time so foolishly.

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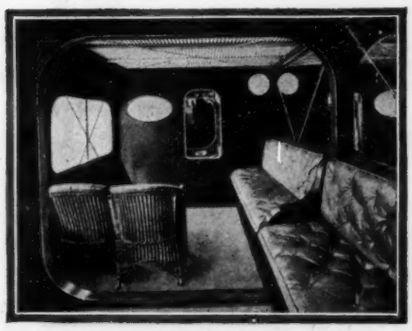

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State of New York
County of New York } ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Geo. Newbold, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the AVIATION AND AIRCRAFT JOURNAL and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

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My commission expires March 30, 1923.

INDEX TO ADVERTISERS

A

Aero Import Corp..... 439
Aeromarine Engineering & Sales Co..... 418
Aircraft Materials & Equipment Corp..... 436
Aircraft Service Directory..... 438

B

B. G. Corporation, The..... 436

C

Curtiss Aeroplane & Motor Corp..... 416

D

Dayton Wright Co..... 414
Diggins, Ralph C., Co., The..... 437

F

Ferdinand, L. W., & Co..... 436
Flying Club of Kansas City..... 434

L

Laird, E. M., Co..... 435

M

Martin, The Glenn L., Co..... 440

S

Sperry, Lawrence, Aircraft Co., Inc., The..... 437

T

Thomas-Morse Aircraft Corp..... 417
Thurston, W. Harris, & Co., Inc..... 436

V

Valentine & Co..... 433

W

Warner, Edward P..... 436
Wellington, Sears & Co..... 437
Where to Fly..... 432
Wright Aeronautical Corp..... 415

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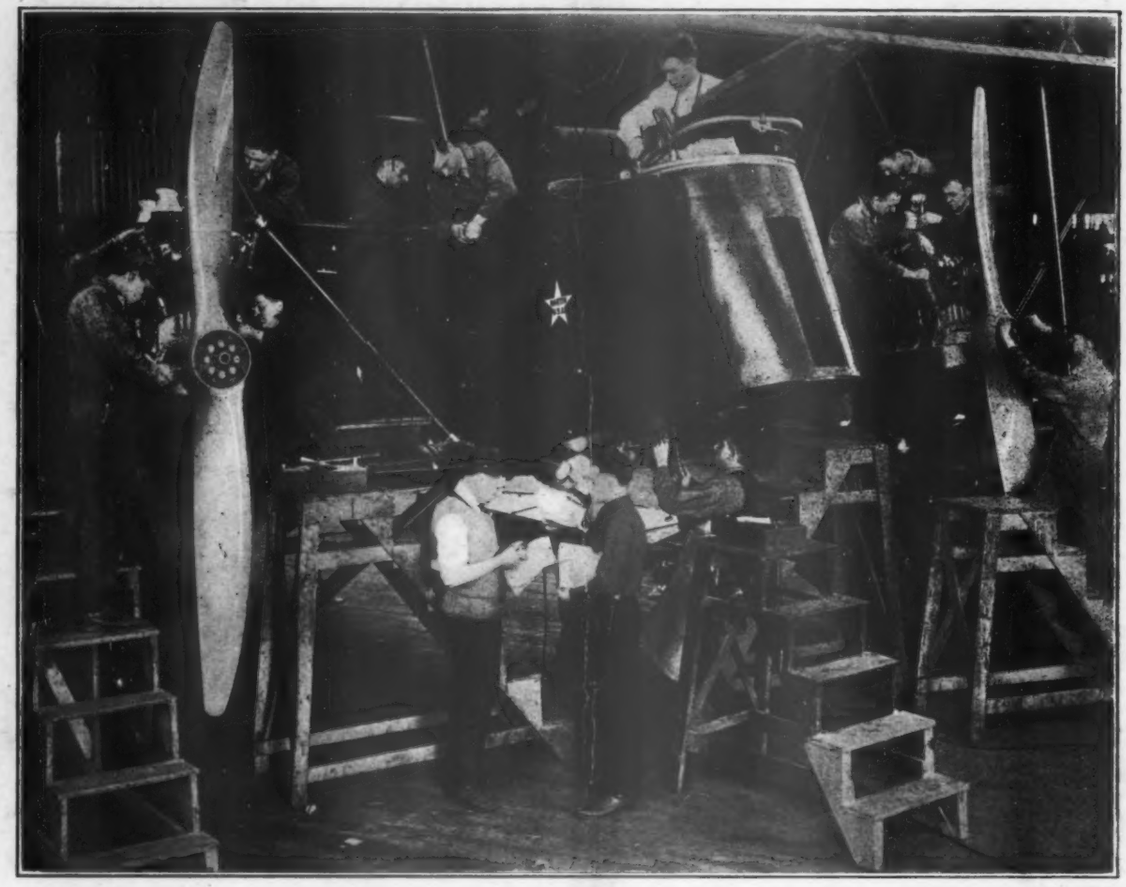

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